

Serial No. 10/825,736
Docket No. 200309260-1

REMARKS

Claims 1-7, 9-22, and 24-30 are pending in the present application.

Reconsideration of the application is respectfully requested in view of the following responsive remarks. For the Examiner's convenience and reference, Applicant's remarks are presented in the order in which the corresponding issues were raised in the Office Action.

In the Office Action of September 20, 2007, the following actions were taken:

- (1) Claims 1-3, 5-7, 9-18, 20-22, and 24-30 were rejected under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent No. 5,958,121 (hereinafter "Lin") in view of U.S. Patent No. 5,624,484 (hereinafter "Takahashi"); and
- (2) Claims 4 and 19 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Lin and Takahashi, and further in view of U.S. Patent No. 6,328,413 (hereinafter "Rutland").

It is respectfully submitted that the presently pending claims be reconsidered and allowed.

Rejections Under 35 U.S.C. § 103

The Examiner has rejected claims 1-3, 5-7, 9-18, 20-22, and 24-30 under 35 U.S.C. § 103 over Lin in view of Takahashi, and claims 4 and 19 over Lin and Takahashi and further in view of Rutland. The Applicant respectfully submits that the presently pending claims are patentable over the cited references for the reasons set forth below, and that the rejection should be withdrawn.

Before discussing the obviousness rejections herein, it is thought proper to briefly state what is required to sustain such a rejection. The issue under § 103 is whether the PTO has stated a case of *prima facie* obviousness. According to the MPEP § 2142, the Examiner has the burden and must establish a case of *prima facie* obviousness by showing the prior art reference, or references combined, teach or suggest all the claim limitations in the instant application. Further, the Examiner has to establish some motivation or suggestion to combine and/or modify the references, where the motivation must arise from the references themselves, or the knowledge generally available to one of ordinary skill in the art. And finally, the Examiner has to show a reasonable expectation of success in the prior art. The Applicant respectfully

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asserts the Examiner has not satisfied the requirement for establishing a case of *prima facie* obviousness in any of the rejections.

The present invention is directed toward a system and method for ink-jet imaging. In accordance with embodiments of the claimed invention, this system allows for reduced nozzle clogging due to cross-contamination. The claims set forth a fluid dispensing system specifically designed for ink-jet printing comprising an ink-jet ink with from 0.1 wt% to 6 wt% of an anionic dye colorant and from 0.05 wt % to 1.0 wt % of an anionic dispersant polymer. The claims also set forth a fixer composition with a cationic crashing agent that is reactive with a component of the ink-jet ink. The fluid dispensing system can be configured for overprinting or underprinting the fixer composition with respect to the ink-jet ink. Claims are also drawn towards a method for ink-jet imaging including jetting an ink-jet ink from printing nozzles that includes an anionic dye colorant and an anionic dispersant polymer, and jetting a fixer composition from printing nozzles.

A *prima facie* case has not been presented by the combination of Lin and Takahashi. The combination of references does not teach or suggest each and every element. Specifically, the combination of Lin and Takahashi does not teach the combination of anionic dye colorant present in an ink with anionic dispersant polymer.

Before discussing the specific references in greater detail, Applicant wishes to discuss the general use of dispersants, whether anionic, cationic, or non-ionic, in the ink-jet arts. One skilled in the ink-jet arts would know that dispersants are typically used with pigment colorants in order to facilitate their dispersion in the ink and to avoid agglomeration or clumping of the pigments. In contrast to this, separate dispersants are seldom if ever used in dye based inks as such dyes are typically soluble and do not benefit from the dispersing agent acting on the colorant *per se*. It is important to note that the anionic dispersing agents used in the systems of the present invention are not present to act on or with the unprecipitated anionic dyes present in the systems. The anionic dispersing agents are present in the system to alleviate and/or eliminate nozzle clogging in an ink-jet system. Specifically, but without being limited by theory, "it is believed that the presence of an anionic dispersant polymer in the ink-jet ink can reattach to undesired anion dye/cationic crashing agent precipitate through a combination of coulombic interactions between

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the anionic dispersant polymer and cationic polymer." Page 8, lines 13-16 (emphasis added). In other words, by including a dispersing agent in the ink-jet ink, nozzle clogging that might otherwise occur as a result of anionic dye/cationic crashing agent precipitation from cross-contamination can be alleviated. With this in mind, our discussion turns to the cited references.

As noted by the Examiner, the Lin reference teaches a set of inks which can include a first ink having a color and comprising water and a colorant selected from the group consisting of anionic dyes, dyes having physically or chemically associated therewith a stabilizing agent having anionic groups, pigment particles having anionic groups chemically attached thereto, pigment particles having physically or chemically associated therewith a stabilizing agent having anionic groups thereon, and mixtures thereof; and a second ink which includes a cationic ammonium functional group to immobilize the first ink. (Column 11, lines 14-32) The Examiner has cited to column 21, lines 12-38 as allegedly teach the presence of both anionic dyes and anionic dispersing agents. Although this passage does provide a laundry list of possible of a variety of stabilizers, including anionic, cationic, and non-ionic, there is no clear teaching of the use of an anionic dye of one weight percent concentration with an anionic dispersing agent with another weight percent concentration. Without such a teaching, no *prima facie* case of obviousness can be established, particularly in light of the knowledge of those skilled in the art that dispersants generally are of no need in inks which utilize dye colorants. Further, it is noted that the reference at the location cited by the Examiner discusses anionic dyes separately from dyes having physically or chemically associated stabilizing agents. In other words, the reference appears to focus on anionic dyes separately from anionic dyes with stabilizing agents associated therewith. Nowhere does the reference refer separately to an embodiment where an anionic dye is used in an ink, and further a different concentration of a dispersing agent is used, as required by the currently claimed invention.

Takahashi also fails to teach the inclusion of both an anionic dye and an anionic dispersing agent. In fact, Takahashi supports the Applicants assertion that one skilled in the art would typically not use dispersants with dyes, but rather, with pigments. When dispersing agents are discussed in Takahashi, they are always tied directly to the use of a pigment in the ink and not to the use of an anionic dye as required by the currently pending claims. Keep in mind that the present invention is

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drawn to the use of dispersants with dye-based inks not for the benefit of the dyes *per se*, but rather to prevent and/or ameliorate precipitation that can occur in small amounts at a print head orifice due to cross contamination with a fixing agent. Examples of the typical purpose of dispersing agents in the *pigment* arts can be found in Takahashi at the following locations in the Takahashi patent: Column 5, lines 20-25; Column 9, lines 35-37, lines 53-55, and lines 58-60; Column 10, lines 3-5 and lines 54-56; Column 11, lines 4-9 and lines 30-35; as well as the Examples. Nowhere in the specification does the reference teach the use of anionic dispersing agents with anionic dye-based inks.

Applicants contend that the Examiner has not met the requirements of establishing a *prima facie* case of obviousness based on the above discussed combination of references. Specifically, the Applicant contends that the combination of the cited references fails to teach each and every element of the claims, namely the presence of both an anionic dye and an anionic dispersing agent in the ink, along with the other claim elements set forth above. As such it is respectfully requested that the rejection be withdrawn and each of the pending claims be allowed.

In addition to the above rejection, the Examiner cited Rutland, in combination with Takahashi and Lin, to remedy the deficiency in claims 4 and 19 of a teaching of ink-jet printing nozzles and fixer printing nozzles configured in a proximity such that, upon jetting, small amounts of fixer composition aerosol jettet from the fixer printing nozzles contact the ink-jet ink printing nozzles, thereby resulting in the ink-jet printing nozzles being susceptible to cross-contamination by the fixer composition. Not only does Rutland not remedy the missing elements of the combination of Takahashi and Lin with respect to the presence of an anion dye and an anionic dispersing agent, Rutland also does not teach a system with all of the claim limitations required by claims 4 and 19. In fact, Rutland more likely teaches away from such a combination.

Specifically, the Examiner has cited to Column 2, line 66 to Column 3, line 28 for support of the teaching that the ink-jet printing nozzles and fixer printing nozzles can be close enough together to be susceptible to cross-contamination. Applicant's note that such discussion is in the background section of the Rutland patent generally teaches away from the use of ink-jet nozzles which cause cross-contamination, particularly when a "fixer" solution is present. The purpose of the invention taught in

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Rutland is to "minimize[] cross-contamination of print cartridges in an inkjet printing system due to aerosol drift by employing a bidirectional spitting scheme coupled with a configuration of the print cartridges." Column 3, lines 34-37. In other words, Rutland teaches a method and/or system for minimizing cross-contamination which involves, amongst other things, configuring the print nozzles or cartridges in such a way as to eliminate or avoid cross-contamination. Therefore, Rutland teaches away from the required elements of claims 4 and 19. As such, even if the combination of Takahashi, Lin, were to teach all of the required elements of claims 1 and 16, (see above) claims 4 and 19 could not be rendered obvious by their combination with Rutland. Stated another way, the need for specialized configuration of various nozzles is not necessary if the system of the claimed invention is implemented, because the ink compositions themselves can ameliorate clogging due to cross contamination. As such, removal of the rejections based on Rutland is respectfully requested.

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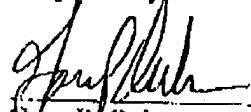
CONCLUSION

In view of the foregoing, Applicant believes that claims 1-7, 9-22, and 24-30 present allowable subject matter and allowance is respectfully requested. If any impediment to the allowance of these claims remains after consideration of the above remarks, and such impediment could be removed during a telephone interview, the Examiner is invited to telephone Gary Oakeson so that such issues may be resolved as expeditiously as possible.

Please charge any additional fees except for Issue Fee or credit any overpayment to Deposit Account No. 08-2025.

Dated this 21st day of December, 2007.

Respectfully submitted,


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